Space Weather Forecast

Issued on Tuesday, 30 April 2024 at 01:11 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: A chance of further Moderate-class flares and slight chance of Strong flares through the period.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity reached Moderate levels following two lower M-class flares in close proximity after midnight UTC, peaking at at 29/0111 UTC. Both flares originated from AR3654, with this region also recently producing an upper C-class flare at 29/1926 UTC. There remain seven sunspot regions on the visible disc, six of which are currently numbered. The large region in the western disc continues to dominate the flare risk. This region continues to show further development in its intermediate portion in recent imagery. Remaining sunspot regions are all relatively small and simple. A further new minor spot group has emerged toward the northeast limb.

No Earth directed Coronal Mass Ejections (CMEs) were observed in available imagery.

Solar Wind / Geomagnetic Activity: Solar winds have been variable within slightly elevated levels and on an overall mostly steady trend, although with a recent apparent weakening trend. The Interplanetary Magnetic Field was weak, with the important north-south component also weakly variable. Geomagnetic activity was mainly Quiet (Kp 0-2).

Energetic Particles / Solar Radiation: Solar radiation was at background levels.

Four-Day Space Weather Forecast Summary

Solar Activity: There is a chance of Moderate-class flares and a slight chance of Strong flares maintained though the period, this mainly from the largest and most magnetically complex sunspot group, which is currently in the west of the visible disc.

Solar Wind / Geomagnetic Activity: A coronal mass ejection (CME) which originated late on 26 Apr in the southeast of the disc, could give a glancing blow early on day 1 (30 Apr), although this is a low probability.
Solar winds will likely continue at slightly elevated levels over the next couple of days, with further weak coronal hole influences possible. Later on day 2 into day 3 (1-2 May) a more definite coronal hole connection and faster stream of solar wind may arrive, perhaps with solar winds briefly reaching elevated levels.
Geomagnetic activity is expected to be largely Quiet at first, but with Unsettled periods likely on days 2-3 (1-2 May) as a faster stream of solar wind perhaps arrives. There is also a slight chance of isolated Active to G1/Minor Storm intervals on day 1 (30 Apr), should the possible glancing CME mentioned above materialise.

Energetic Particles / Solar Radiation: Solar radiation is most likely to remain at background levels through this period. There is a slight chance for an S1 or greater event, with the large,

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.

complex sunspot in the western quadrant posing the main risk as it continues to rotate westwards.

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	10	10	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	40	40	40	40
Very Active	R3 to R5 X	No	10	10	10	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	10	10	10
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.